ABSTRACT

THESIS: M.I.D.A.S. – Metrics Identification of Attack Surfaces

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This thesis endeavors to determine the feasibility of design metrics as a predictor of attack surface size by finding a positive correlation between one or more design metrics and an application's attack surface measurement. An attack surface is the set of ways in which an adversary can enter a system and potentially cause damage. For an experimental setting, six open-source java-based projects were analyzed. For each project, the attack surface is assessed using Microsoft's Attack Surface Analyzer, which takes a snapshot of a system state before and after the installation of product(s) and displays the changes to a number of key elements of the Windows attack surface. A collection of design metrics was collected from each open-source project as well. The goal is to find a metric or set of metrics that predicted the attack surface changes identified by the Attack Surface Analyzer.